

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. **(currently amended)** A system for providing zone-based personalized information to a user of a mobile communication terminal located in a specific zone among a plurality of zones within a cell serviced by a base station of a cellular network, which comprises said system:

a plurality of zone management systems each that is installed in one of the zones within said cell for acquiring a specific zone and acquires a MIN (Mobile Identification Number) information of [[a]] the mobile communication terminal entering the specific respective zone;

a zone information management server that receives the MIN information and zone identification information of the specific zone where the mobile communication terminal is located from the zone management system is installed of said specific zone, requests location registration of the terminal to a home location register (HLR), and retrieves transmission information to be transferred to the terminal according to the MIN information and the zone identification information; and

an SMS (Short Message Services) server that receives the transmission information and the MIN information from the zone information management server, gets location information of the terminal corresponding to the MIN information from the HLR, and transfers the transmission information and the MIN information to the base station of the cell where the terminal is located according to the location information.

2. **(currently amended)** The system of claim 1, wherein the zone management system

wirelessly receives mobile terminal information that is transferred from ~~[[a]]~~ the mobile terminal to ~~[[a]]~~ the base station, and acquires the MIN information from the received mobile terminal information.

3. **(currently amended)** The system of claim 2, wherein the zone management system comprises:

a control part;

an antenna which wirelessly receives high frequency signals including the mobile terminal information that is transmitted from the mobile terminal to the base station;

a high frequency signal-processing part which converts the high frequency signals transmitted from the antenna into intermediate frequency signals;

a base-band processing part which, after converting the intermediate frequency signals received from the high frequency signal-processing part into digital signals, and demodulating the digital signals, acquires the MIN information from the demodulated ~~data~~ digital signals; and

a communication part which transmits the MIN information and the zone identification information to the zone information management server under control of ~~[[a]]~~ the control part.

4. **(currently amended)** The system of claim 3, wherein the zone management system further comprises

a fire detecting part which detects an outbreak of fire by sensing heat or smoke.

5. **(currently amended)** The system of claim 3, wherein the high frequency signal processing part comprises:

a diplexer that splits the received signals from the antenna into a high frequency signal of 800 MHz band and a high frequency signal of 1.8 GHz band;

a low noise amplifier that amplifies each high frequency signal inputted from the diplexer;

a band pass filter that selects a needed frequency band from the signals inputted from the

low noise amplifier and passes only the selected band;

a Phase Locked Loop (PLL);

a downward frequency mixer that converts the high frequency signals to the intermediate frequency signals by mixing the high frequency signals inputted from the band pass filter and a local signal inputted from the PLL;

an intermediate frequency amplifier that amplifies the intermediate frequency signals inputted from the downward frequency mixer; and

an intermediate frequency signal processing part that controls gain to each intermediate frequency signal outputted from the intermediate frequency amplifier to a desired level.

6. **(currently amended)** The system of claim 1, wherein the zone management system receives mobile terminal information transmitted from the mobile terminal to ~~[[a]]~~ the base station, acquires a MAC address of the mobile terminal from the received mobile terminal information, and transmits the MAC address and zone identification information to the zone information management server.

7. **(currently amended)** The system of claim 6, wherein the zone information management server searches a MIN information database by use of the MAC address that is transmitted from the zone management system, ~~finds~~ ~~searches~~ the MIN information matched to the MAC address, requests the location registration of the mobile terminal to the HLR, searches the transmission information to be transmitted to the mobile terminal by use of the MAC address and the zone identification information, and transmits the transmission information and the found MIN information to the SMS server.

8. **(withdrawn)** The system of claim 1, wherein the zone management system periodically transmits a specified zone notifying frequency signal to its own zone, receives bluetooth signals that the mobile terminal transmits when the mobile terminal detects the specified

zone notifying frequency signal, and acquires the MIN information from the bluetooth signals.

9. (withdrawn) The system of claim 8, wherein the mobile terminal comprises:  
a specified zone detecting part that detects the entry into a specified zone by receiving the specified zone notifying frequency signal; and  
a bluetooth signal processing part that, by being converted to active mode under control of the specified zone detecting part, transmits the MIN information to the zone management system through a bluetooth signal.

10. (withdrawn) The system of claim 8, wherein the zone management system comprises:  
an antenna which receives bluetooth signal;  
a specified zone notifying frequency processing part that periodically transmits a specified zone notifying frequency signal;  
a received bluetooth signal processing part that acquire the MIN information by processing the bluetooth signal received through the antenna; and  
a control part that transmits the MIN information and the zone identification information to the zone information management server by controlling the communication part when the MIN information is acquired in the received bluetooth signal processing part.

11. (withdrawn) The system of claim 10, wherein the zone management system further comprises the fire detecting part which detects outbreak of fire by sensing heat or smoke.

12. (withdrawn) The system of claim 1, wherein the zone management system periodically transmits a specified zone notifying frequency signal to its own zone, receives bluetooth signals that the mobile terminal transmits when the mobile terminal detects the specified zone notifying frequency signal, acquires a MAC address from the bluetooth signals, and transmits

the MAC address and the zone identification information to the zone information management server.

13. The system of claim 12, wherein when the mobile terminal detects the its entry into a specified zone by receiving the specified zone notifying frequency signal transmitted from the zone management system, it transmits the MAC address to the zone management system through bluetooth signal.

14. (withdrawn) The system of claim 12, wherein the zone information management server searches a MIN information database by use of the MAC address that is transmitted from the zone management system, searches a MIN information matched to the MAC address, requests location registration of the mobile terminal to the HLR by use of the MIN information and the zone identification information, searches transmission information to be transmitted to the mobile terminal by use of the MAC address and the zone identification information, and transmits the transmission information and the MIN information to the SMS server.

15. (withdrawn) The system of claim 1, wherein the zone management system periodically transmits a specified zone notifying frequency signal to its own zone, receives microwave of 2.4 GHz band for WLAN that is transmitted by the mobile terminal detecting the specified zone notifying frequency signal, and acquires the MIN information from the received microwave.

16. (withdrawn) The system of claim 15, wherein the mobile terminal comprises:  
a specified zone detecting part that detects the entry into a specified zone by receiving the specified zone notifying frequency signal; and  
a microwave processing part that transmits the MIN information to the zone management system through the microwave by being converted to active mode under control of the specified

zone detecting part.

17. (withdrawn) The system of claim 15, wherein the zone management system comprises:

an antenna that receives microwaves; a specified zone notifying frequency processing part that periodically transmits a specified zone notifying frequency signal through the antenna;

a received microwave signal processing part that acquire the MIN information by processing the microwave signal received through antennas; and

a control part that transmits the MIN information and the zone identification information to the zone information management server by controlling a communication part when the MIN information is acquired in the received microwave signal processing part.

18. (withdrawn) The system of claim 17, wherein the zone management system further comprises the fire detecting part which detecting outbreak of fire by sensing heat or smoke.

19. (withdrawn) The system of claim 1, wherein the zone management system periodically transmits a specified zone notifying frequency signal to its own zone, receives microwave of 2.4 GHz band for WLAN that the mobile terminal transmits when it detects the specified zone notifying frequency signal, acquires the MAC address from the microwave, and transmits the MAC address and the zone identification information to the zone information management server.

20. (withdrawn) The system of claim 19, wherein when the mobile terminal detects the its entry into a specified zone by receiving the specified zone notifying frequency signal transmitted from the zone management system, it transmits the MAC address to the zone management system through microwave.

21. (withdrawn) The system of claim 19, wherein the zone information management server searches a MIN information database by use of the MAC address that is transmitted from the zone management system, searches a MIN information matched to the MAC address, requests location registration of the mobile terminal to the HLR by use of the MIN information and the zone identification information, searches transmission information to be transmitted to the mobile terminal by use of the MAC address and the zone identification information, and transmits the transmission information and the MIN information to the SMS server.

22. (withdrawn) The system of claim 1, wherein the zone management system periodically transmits a specified zone notifying frequency signal to its own zone, receives BCDMA signal that is transmitted by the mobile terminal detecting the specified zone notifying frequency signal, and acquires the MIN information from the received BCDMA signal.

23. (withdrawn) The system of claim 22, wherein the mobile terminal comprises:  
a specified zone detecting part that detects the entry into a specified zone by receiving the specified zone notifying frequency signal; and  
a BCDMA signal processing part that transmits the MIN information to the zone management system through the BCDMA signal by being converted to active mode under control of the specified zone detecting part.

24. (withdrawn) The system of claim 22, wherein the zone management system comprises:  
an antenna that receives BCDMA signal;  
a specified zone notifying frequency processing part that periodically transmits a specified zone notifying frequency signal through the antenna;  
a received BCDMA signal processing part that acquire the MIN information by processing the BCDMA signal received through the antenna; and

a control part that transmits the MIN information and the zone identification information to the zone information management server by controlling a communication part when the MIN information is acquired in the receiving BCDMA signal processing part.

25. (withdrawn) The system of claim 24, wherein the zone management system further comprises a fire detecting part which detecting outbreak of fire by sensing heat or smoke.

26. (withdrawn) The system of claim 1, wherein the zone management system periodically transmits a specified zone notifying frequency signal to its own zone, receives BCDMA signal that the mobile terminal transmits when it detects the specified zone notifying frequency signal, acquires a MAC address from the BCDMA signal, and transmits the MAC address and the zone identification information to the zone information management server.

27. (withdrawn) The system of claim 26, wherein when the mobile terminal detects the its entry into a specified zone by receiving the specified zone notifying frequency signal transmitted from the zone management system, it transmits the MAC address to the zone management system through the BCDMA signal.

28. (withdrawn) The system of claim 26, wherein the zone information management server searches a MIN information database by use of the MAC address that is transmitted from the zone management system, searches a MIN information matched to the MAC address, requests location registration of the mobile terminal to the HLR by use of the MIN information and the zone identification information, searches transmission information to be transmitted to the mobile terminal by use of the MAC address and the zone identification information, and transmits the transmission information and the MIN information to the SMS server.

29. (withdrawn) The system of claim 1, wherein the zone management system



periodically transmits a specified zone notifying frequency signal to its own zone, receives microwave for ZigBee of 2.4 GHz band/915 MHz band/868 MHz band that is transmitted by the mobile terminal detecting the specified zone notifying frequency signal, and acquires the MIN information from the received microwave.

30. (withdrawn) The system of claim 29, wherein the mobile terminal comprises:  
a specified zone detecting part that detects the entry into a specified zone by receiving the specified zone notifying frequency signal; and  
a microwave processing part that transmits the MIN information to the zone management system through microwave by being converted to active mode under control of the specified zone detecting part.

31. (withdrawn) The system of claim 29, wherein the zone management system comprises:  
an antenna that receives microwave;  
a specified zone notifying frequency processing part that periodically transmits a specified zone notifying frequency signal through the antenna;  
a received microwave processing part that acquire the MIN information by processing the microwave received through the antenna; and  
a control part that transmits the MIN information and the zone identification information to the zone information management server by controlling a communication part when the MIN information is acquired in the receiving microwave processing part.

32. (withdrawn) The system of claim 31, wherein the zone management system further comprises a fire detecting part which detecting outbreak of fire by sensing heat or smoke.

33. (withdrawn) The system of claim 1, wherein the zone management system

periodically transmits a specified zone notifying frequency signal to its own zone, receives microwave for ZigBee of 2.4 GHz band/915 MHz band/868 MHz band that mobile terminal transmits when it detects the specified zone notifying frequency signal, and acquires a MAC address from the microwave, and transmits the MAC address and the zone identification information to the zone information management server.

34. (withdrawn) The system of claim 33, wherein when the mobile terminal detects the its entry into a specified zone by receiving the specified zone notifying frequency signal transmitted from the zone management system, it transmits the MAC address to the zone management system through microwave.

35. (withdrawn) The system of claim 33, wherein the zone information management server searches a MIN information database by use of the MAC address that is transmitted from the zone management system, searches a MIN information matched to the MAC address, requests location registration of the mobile terminal to the HLR by use of the MIN information and the zone identification information, searches transmission information to be transmitted to the mobile terminal by use of the MAC address and the zone identification information, and transmits the transmission information and the MIN information to the SMS server.

36. (withdrawn) The system of claim 1, wherein the zone management system periodically transmits a specified zone notifying frequency signal to its own zone, receives radio wave that is transmitted by the mobile terminal detecting the specified zone notifying frequency signal, and acquires the MIN information from the received radio wave.

37. (withdrawn) The system of claim 36, wherein the mobile terminal comprises:  
a specified zone detecting part that detects the entry into a specified zone by receiving the specified zone notifying frequency signal; and

a radio wave processing part that transmits the MEN information to the zone management system through radio wave by being converted to active mode under control of the specified zone detecting part.

38. (withdrawn) The system of claim 36, wherein the zone management system comprises:

an antenna that receives radio wave;

a specified zone notifying frequency processing part that periodically transmits a specified zone notifying frequency signal;

a received radio wave processing part that acquire the MIN information by processing the radio wave received through the antenna; and

a control part that transmits the MIN information and the zone identification information to the zone information management server by controlling a communication part when the MIN information is acquired in the receiving radio wave processing part.

39. (withdrawn) The system of claim 38, wherein the zone management system further comprises a fire detecting part which detecting outbreak of fire by sensing heat or smoke.

40. (withdrawn) The system of claim 1, wherein the zone management system periodically transmits a specified zone notifying frequency signal to its own zone, receives radio wave that mobile terminal transmits when it detects the specified zone notifying frequency signal, acquires a MAC address from the radio wave, and transmits the MAC address and the zone identification information to the zone information management server.

41. (withdrawn) The system of claim 40, wherein when the mobile terminal detects the its entry into a specified zone by receiving the specified zone notifying frequency signal transmitted from the zone management system, it transmits the MAC address to the zone management system

through radio wave.

42. (withdrawn) The system of claim 40, wherein the zone information management server searches a MIN information database by use of the MAC address that is transmitted from the zone management system, searches a MIN information matched to the MAC address, requests location registration of the mobile terminal to the HLR by use of the MIN information and the zone identification information, searches transmission information to be transmitted to the mobile terminal by use of the MAC address and the zone identification information, and transmits the transmission information and the MIN information to the SMS server.

43. **(currently amended)** The system of claim 1, wherein each of the zones supervised by which the zone management systems, respectively, is supervised covers 2 to 50 m in radius.

44. **(currently amended)** A method ~~[[for]]~~ of providing ~~a specified~~ zone-based personalized information, the method comprising:

installing a plurality of zone management systems each in one of a plurality of zones within a cell serviced by a base station of a cellular network;

acquiring MIN information of a mobile communication terminal entering a specific zone among said zones, said acquiring being performed by the [[in a]] zone management system installed in said specific zone;

requesting location registration of the terminal to a home location register (HLR) by use of the MIN information and [[a]] zone identification information of the specific zone received from the zone management system, said requesting being performed by [[in]] a zone information management server;

retrieving, by the zone information management server, transmission information to be transferred to the terminal according to the zone identification information and the MIN information, in the zone information management server;

transferring the transmission information and the MIN information ~~to a SMC~~ via an SMS (Short Message Services) server to a SMC (SMS Message Center);

generating, by the SMC, an SMS message by use of the transmission information ~~in the SMC~~ and getting, also by the SMC, location information of the mobile terminal corresponding to the MIN information from the HLR, ~~in the SMC~~;

transferring the SMS message and the MIN information to base station of the cell where the terminal is located according to the location information; and

transmitting, by the base station, ~~transforming~~ the SMS message and the MIN information in into the data burst message format, ~~and transmitting them to the terminal, in the base station.~~

45. **(currently amended)** The method of claim 44, further comprising:

notifying the zone management server of an outbreak of fire when the zone management system detects the outbreak of fire;

transferring ~~[[the]]~~ a MIN information list of ~~[[the]]~~ mobile communication terminals, which are located in the zone of the zone management system, and the announcement of the outbreak of fire to the SMC via the SMS server;

generating ~~[[the]]~~ an SMS message by use of the announcement of the fire in the SMC and getting location information of the mobile terminals corresponding to the MIN information list from the HLR;

transferring the SMS message and the MIN information list to the base station of the cell where the terminals are ~~[[is]]~~ located via ~~[[MSC]]~~ the SMC according to the location information; and

transmitting, by the base station, ~~transforming~~ the SMS message and the MIN information in the list in ~~[[into]]~~ the data burst message format, ~~and transmits them to the terminals, in the base station.~~

46. **(currently amended)** The method of claim 45, further comprising:

transferring [[the]] a MIN information list of [[the]] mobile terminals, which are located in the zone of [[the]] another zone management system which is located in the same building where the zone management system notifying the fire alarm is also located, and the announcement of the outbreak of fire to the SMS server.

47. **(currently amended)** The method of claim 44, wherein the step of acquiring the MIN information comprises:

wirelessly receiving mobile terminal information which is transmitted by the mobile terminal entering the specific zone under control of the zone management system; and  
acquiring the MIN information from the received terminal information.

48. (withdrawn) The method of claim 44, wherein the step of acquiring the MIN information comprises: periodically transmitting the specific zone notifying frequency signal to the corresponding zone;

receiving the Bluetooth signal from the mobile terminal that detects the specific zone notifying frequency signal; and acquiring the MIN information from the Bluetooth signal.

49. (withdrawn) The method of claim 44, wherein the step of acquiring the MIN information comprises:

periodically transmitting the specific zone notifying frequency signal to the corresponding zone; receiving the microwave of 2.4 GHz, which is assigned for WLAN, from the mobile terminal which detects the specific zone notifying frequency signal; and  
acquiring the MIN information from the microwave.

50. (withdrawn) The method of claim 44, wherein the step of acquiring the MIN information comprises:

periodically transmitting the specific zone notifying frequency signal to the corresponding

zone;

receiving BCDMA signal from the mobile terminal which detects the specific zone notifying frequency signal; and  
acquiring the MIN information from the BCDMA signal.

51. (withdrawn) The method of claim 44, wherein the step of acquiring the MIN information comprises:

periodically transmitting the specific zone notifying frequency signal to the corresponding zone;

receiving microwave for ZigBee of 2.4 GHz band/915 MHz band/868 MHz band from the mobile terminal which detects the specific zone notifying frequency signal; and  
acquiring the MIN information from the microwave.

52. (withdrawn) The method of claim 44, wherein the step of acquiring the MIN information comprises:

periodically transmitting the specific zone notifying frequency signal to the corresponding zone;

receiving the radio wave from the mobile terminal which detects the specific zone notifying frequency signal; and  
acquiring the MIN information from the radio wave.

53. (withdrawn) The method of claim 44, wherein the step of acquiring the MIN information comprises:

transmitting location registration request message to the Mobile Terminal entering a specified zone;

receiving Bluetooth signal from the Mobile Terminal receiving the location registration request message; and

acquiring the MIN information from the Bluetooth signal.

54. (withdrawn) The method of claim 44, wherein the step of acquiring the MIN information comprises:

transmitting location registration request message to the Mobile Terminal entering a specified zone;

receiving microwave for WLAN of 2.4 GHz band from the Mobile Terminal receiving the location registration request message; and

acquiring the MIN information from the microwave.

55. (withdrawn) The method of claim 44, wherein the step of acquiring the MIN information comprises:

transmitting location registration request message to the Mobile Terminal entering a specified zone;

receiving BCDMA signal from the Mobile Terminal receiving the location registration request message; and

acquiring the MIN information from the BCDMA signal.

56. (withdrawn) The method of claim 44, wherein the step of acquiring the MIN information comprises:

transmitting location registration request message to the Mobile Terminal entering a specified zone;

receiving microwave for ZigBee of 2.4 GHz band/915 MHz band/868 MHz band from the Mobile Terminal receiving the location registration request message; and

acquiring the MIN information from the microwave.

57. (withdrawn) The method of claim 44, wherein the step of acquiring the MIN



information comprises:

transmitting location registration request message to the Mobile Terminal entering a specified zone;

receiving radio wave from the Mobile Terminal receiving the location registration request message; and

acquiring the MIN information from the radio wave.

58. **(currently amended)** The method of claim 44, further comprising:

acquiring, by the zone management system, MAC information of the mobile terminal entering the zone under supervision of the, ~~in the~~ zone management system;

receiving the MAC information from the zone management system and acquiring the MIN information matched to the MAC information by searching a MIN information database by use of the received MAC information, in the zone information management server;

requesting the location registration of the mobile terminal to the HLR by use of the MIN information and the zone identification information transmitted along with the MAC information from the zone management system;

searching for the information to be transferred to ~~the corresponding user~~ according to the MIN information and the zone identification information, in the zone information management server; and

transferring the transmission information and the MIN information via the SMS server to the SMC.

59. **(new)** The method of claim 44, wherein

said installing comprises connecting the zone management systems to the zone information management server via a computer network, without directly connecting the zone management systems to the base station; and

the MIN information is transmitted from the zone information management server to the

Serial No. 10/563,287

HLR via, at least partially, the computer network, without being transmitted by the base station.